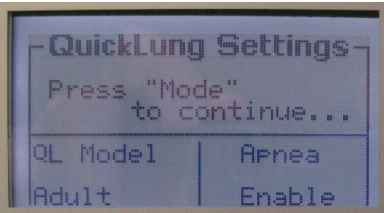
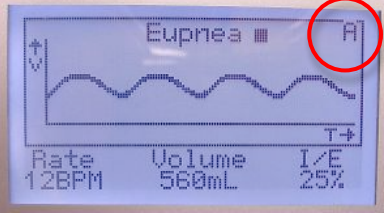
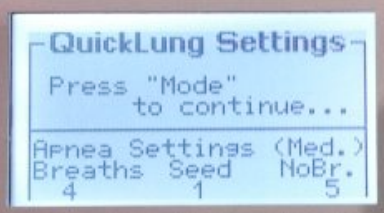


The QuickLung Settings window will appear next. Using the left <+/-> buttons, set the **QL Model** to **Adult** or **Junior**. Using the right <+/-> buttons, set the **Apnea** mode to **Enable** or **Disable**. When complete, press the **Mode Select** button to continue.



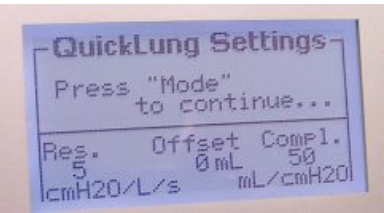
If Apnea is enabled, the Apnea settings window will appear. There are three (3) options available for Apnea mode: **Breaths**, **Seed**, and **NoBr**. The **Breaths** and **NoBr**. (No Breaths or pauses) are based on the set median values and can range from 1 to 99. These values will randomly fluctuate +/- 30% based on the set **Seed** value. The **Seed** value is a random number generator used to create the +/- 30% ranges. **Seed** values can range from 0 to 999. Setting the **Seed** value to zero (0) forces the Breather to use the set **Breaths** and **NoBr.** as fixed values. Apnea patterns can be repeated as fixed (zero **Seed** value) or repeated as random (using the same **Seed** value, **Breaths**, and **NoBr.** values). When complete, press the **Mode Select** button to continue.



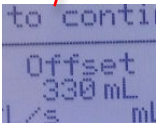
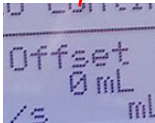
NOTE: When Apnea is enabled, the letter "A" appears in the top right corner of the chosen breathing pattern

NOTE: Cheyne-Stokes Apnea is only relevant for the number of breath pauses (**NoBr.**).

If Apnea is Disabled OR Apnea settings have been adjusted, the last setup window will appear. There are three (3) settings in this window: **Res.**, **Offset**, and **Compl.** Use the <+/-> buttons to set the **Resistance** and **Compliance** values to match the QuickLung test lung.



The **Offset** is used to improve accuracy for the desired Tidal Volumes. To configure the offset, use the <+/-> buttons to set the **Offset** value to zero (0), then press the **Start/Stop** button. This places the lift-arms at the zero position. Increase the **Offset** value, and then press the **Start/Stop** button to verify position of the lift-arms. The **Offset** is ideal when the lift-arms just touch the underside of the QuickLung Wing. When complete, press the **Mode Select** button to continue.



Press **Mode Select** to select the desired breathing pattern. Use the <+/-> buttons to adjust breath settings. Press **Start/Stop** to begin and end a simulation

Apneusis – Rate, Volume, Hold
Kussmaul's – Rate, Volume, I/E
Biot's – fmax, Vmax, MV
Cheyne-Stokes – Rate, Vmax
Eupnea – Rate, Volume, I/E

Settings Ranges/Limits*

	R=5 cmHO/L/s	R=20 cmHO/L/s	R=50 cmHO/L/s	C=50 mL/cmHO	C=20 mL/cmHO	C=10 mL/cmHO
Max Flow	80 L/m	40 L/m	20 L/m			
Max Vol.				720 mL	500 mL	300 mL

	BPM	Vol [mL]	I/E ratio [%]	MV [L]	Insp. Hold %
Apneusis	4-40 (12)	80-720 (450)	60-75, set by algorithm		25-50 (25)
Kussmaul's	18-60 (18)	200-720 (720)	40-60 (50)		
Biot's	12-60** (18)	80-720 (600)	20-50 (50)	0.1-9.9 (6.0)	
Cheyne-Stokes	4-40 (12)	200-720 (720)***	Fixed (50)		
Eupnea	4-60 (12)	80-720 (300)	20-80 (50)		

*Default values in parenthesis **fmax ***Vmax of a group of breaths
*Contact IngMar Medical Ltd. to check for availability of the QuickLung Junior model

Maintenance
The device is maintenance-free
Please contact IngMar Medical for repair, or if you need replacement parts.

Technical Data
Weight: 8 lbs 4 oz (3.7 kg)
Dimensions: 13.3 x 7.4 x 5 inches (337 x 189 x 127 mm)
Electrical Input: 24 VDC 1.3/2.3 A (Power Supply 100~240 VAC 1.5/3.0A)

Contact Information
www.ingmarmed.com, info@ingmarmed.com
voice: (412) 441-8228
toll-free: (800) 583-9910
fax: (412) 441-8404



QuickLung™ Breather

Accessory for the

QuickLung Precision Lung Model

User's Quick Reference

Legal Information

Product Warranty

Products manufactured or distributed by IngMar Medical Ltd., are fully warranted, covering materials and workmanship, for a period of one year from the date of shipment, except for products with stated warranties other than one year. IngMar Medical reserves the right to perform warranty service(s) at its factory, at an authorized repair station, or at the customer's installation.

IngMar Medical's obligations under this warranty are limited to repairs, or at IngMar Medical's option, replacement of any defective parts of our equipment, except fuses and batteries, without charge, if said defects occur during normal service. Claims for damages during shipment must be filed promptly with the transportation company. All correspondence concerning the equipment must specify both the model name and number, and the serial number as it appears on the equipment. Improper use, mishandling, tampering with, or operation of the equipment without following specific operating instructions will void this warranty and release IngMar Medical from any further warranty obligations. The above is the sole warranty provided by IngMar Medical, Ltd. No other warranty, expressed or implied, is intended. Representatives of IngMar Medical are not authorized to modify the terms of this warranty.

For factory repair service, call:
Toll free 1-800-583-9910
International: (412) 441-8228
Facsimile: (412) 441-8404

Limitation of Liability

IngMar Medical Ltd.'s liability, whether arising out of or related to manufacture and sale of the goods, their installation, demonstration, sales representation, use, performance, or otherwise, including any liability based upon above defined product warranty, is subject to and limited to the exclusive terms and conditions as set forth, whether based upon breach of warranty or any other cause of action whatsoever, regardless of any fault attributable to IngMar Medical, and regardless of the form of action (including, without limitation, breach of warranty, negligence, strict liability, or otherwise).

THE STATED EXPRESSED WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IngMar Medical, Ltd. shall not be liable for, nor shall buyer be entitled to recover, any special incidental or consequential damages or for any liability incurred by buyer to any third party in any way arising out of or relating to the goods.

Intended Use

The QuickLung Breather is the spontaneous breathing option for the IngMar Medical QuickLung. It may be used in ventilator management training where the need for a spontaneously breathing respiratory simulator is essential while addressing topics of synchrony, patient support, and weaning. The QuickLung Breather may also be used effectively in ventilator performance verification procedures that require reproducible breath triggers.

The purpose of the lung simulator within the context of ventilator performance verification is solely to assist in implementing test procedures mandated or recommended by the ventilator manufacturer.

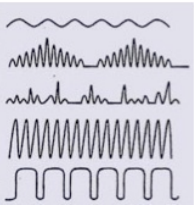
WARNING!

It is mandatory to always follow ventilator manufacturers' instructions and recommendations regarding performance verification procedures. IngMar Medical, Ltd. does not recommend any specific ventilator test or calibration procedures.

Principle of Operation

The device operates via lift arms that create an inhalation of the attached QuickLung, based on programmatically defined patterns. The spontaneous breaths may be augmented at any time through the support of a ventilator. Each breath pattern can include fixed or random apnea settings.

The following types of breathing can be simulated:



Eupnea → Shallow breathing

Cheyne-Stokes → Periodic breathing

Biot's → Groups of quick, shallow inspiration

Kussmaul's → Deep and labored breathing

Apneusis → Deep, gasping inspiration with a pause at full inspiration

Quick Start Setup Procedures

If the Breather Wing is not installed on the QuickLung, please see Application Note – QuickLung Breather Wing Installation.pdf.

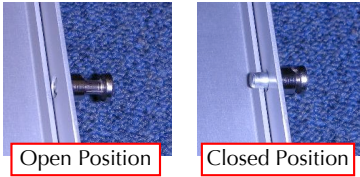


QuickLung Breather with Accessories

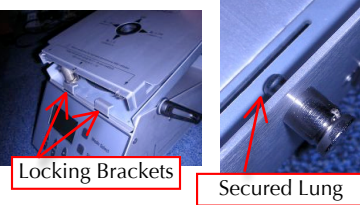
Mechanical Setup

Installing QuickLung

On the rear of the Breather, there is a spring-loaded pin used to secure the QuickLung test lung into place. Pull and twist the spring-loaded pin so that the QuickLung can be installed.

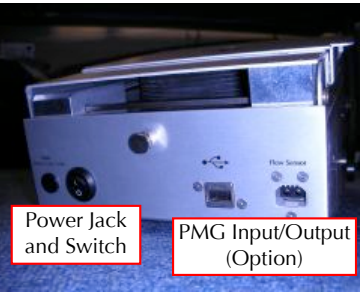


Set the QuickLung onto the Breather by sliding the front of the lung under the Breather locking brackets and lowering onto the Breather surface. Release the spring-loaded pin to secure the lung.



Power the system by connecting the Power Supply to the rear of the Breather and turning ON the switch.

PMG Option – Connect the USB cable to a computer running the A+ software. Connect the flow sensor into the respiratory circuit using the 22mm to 15mm adapter



Operational Setup

When the system is powered ON, the screen will display the IngMar Medical logo and the firmware version.



WARNING!

KEEP HANDS CLEAR when powering the system. Power to the Breather will automatically raise the lift arms to the initial start position.